Amendments to the Claims:

Please amend claims 1, 12, 28, and 44 as follows:

1 (currently amended) A multi-mode optical fiber link comprising:

a) a single-mode optical fiber having an input that receives an optical signal for transmission through the multi-mode optical fiber link;

b) a first spatial mode converter having an input that is coupled to an output of the single-mode optical fiber, the first spatial mode converter converting the optical signal to a plurality of modes and conditioning a modal profile of the optical signal for propagation through a multi-mode optical fiber;

c) a multi-mode optical fiber having an input that is coupled to an output of the first spatial mode converter, the multi-mode optical fiber propagating the optical signal having the conditioned modal profile; and

d) a second spatial mode converter having an input that is coupled to an output of the multi-mode optical fiber, the second spatial mode converter reducing a number of optical modes in the optical signal, wherein both the first and the second spatial mode converters increase an effective modal bandwidth of the optical signal propagating through an output of the second spatial mode converter.

2 (original) The optical fiber link of claim 1 wherein the first spatial mode converter comprises a modal conditioning patch that conditions the optical signal propagating from the single-mode optical fiber to a multi-mode optical signal for transmission through the multi-mode optical fiber.

3 (original) The optical fiber link of claim 1 wherein the input of the multi-mode optical fiber is coupled to the output of the first spatial mode converter at an interface, wherein the interface couples a geometric center optical axis of the first spatial mode converter to a geometric center optical axis of the multi-mode optical fiber with a predetermined offset distance.

4 (original) The optical fiber link of claim 3 wherein the predetermined offset distance is between about fifteen and twenty-five micrometers.

5 (original) The optical fiber link of claim 1 wherein the input of the multi-mode optical fiber is coupled to the output of the first spatial mode converter at an interface so that a center of a modal profile of the optical signal is launched from the first spatial mode converter into the multi-mode optical fiber at a position that is displaced a predetermined distance from a geometric center optical axis of the multi-mode optical fiber.

6 (original) The optical fiber link of claim 1 wherein the input of the multi-mode optical fiber is coupled to the output of the first spatial mode converter at an interface so that a center of a modal profile of the optical signal is launched from the first spatial mode converter into the multi-mode optical fiber at a position that is displaced a predetermined distance from a peak optical intensity profile in the multi-mode optical fiber.

7 (original) The optical fiber link of claim 1 wherein the input of the multi-mode optical fiber is coupled to the output of the first spatial mode converter at an interface so as to achieve a predetermined non-zero angle between a geometrical center optical axis of the first spatial mode converter and a geometrical center optical axis of the multi-mode optical fiber.

8 (original) The optical fiber link of claim 1 wherein the input of the multi-mode optical fiber is coupled to the output of the first spatial mode converter at an interface so that the optical signal is launched from the first spatial mode converter into the multi-mode optical fiber at a predetermined non-zero angle relative to a geometrical center optical axis of the multi-mode optical fiber.

9 (original) The optical fiber link of claim 1 wherein the input of the multi-mode optical fiber is coupled to the output of the first spatial mode converter at an interface so that the optical signal is launched from the first spatial mode converter into the multi-mode optical fiber at a predetermined non-zero angle relative to a peak optical intensity profile in the multi-mode optical fiber.

10 (original) The optical fiber link of claim 1 further comprising an optical detector that is butt-coupled directly to the output of the second spatial mode converter.

11 (original) The optical fiber link of claim 1 further comprising a second single-mode optical fiber that is coupled to the output of the second spatial mode converter.

12 (currently amended) The optical fiber link of claim 1 ~~wherein the~~ further comprising a single-mode optical fiber that couples two segments of the multi-mode optical fiber ~~comprises at least one section of single mode optical fiber~~.

13 (original) The optical fiber link of claim 1 wherein at least one of the first and the second spatial mode converters comprises a slit aperture.

14 (original) The optical fiber link of claim 1 wherein at least one of the first and the second spatial mode converters comprises a pin hole aperture.

15 (original) The optical fiber link of claim 14 wherein the pin hole aperture comprises at least two concentric circular apertures.

16 (original) The optical fiber link of claim 14 wherein the pin hole aperture has a diameter that is between about twelve and twenty-five micrometers.

17 (original) The optical fiber link of claim 1 wherein the second spatial mode converter reduces a number of higher-order modes propagating through the output of the multi-mode optical fiber link.

18 (original) The optical fiber link of claim 1 wherein the second spatial mode converter reduces a number of lower-order modes propagating through the output of the multi-mode optical fiber link.

19 (original) The optical fiber link of claim 1 wherein at least one of the first and the second spatial mode converters comprises an optical filter.

20 (currently amended) A method of increasing an effective modal bandwidth of an optical signal transmitting through a multi-mode optical fiber, the method comprising:

a) spatial mode converting an optical signal <u>to a plurality of modes</u>, thereby reducing modal dispersion, and increasing an effective bandwidth of the optical signal;

b) launching the spatially mode converted optical signal into a multi-mode optical fiber at an angle and a displacement relative to a geometrical center optical axis of the multi-mode optical fiber, the angle and the displacement being chosen to

excite higher-order modes in the spatially mode converted optical signal propagating in the multi-mode optical fiber;

c) propagating the spatially mode converted optical signal through the multi-mode optical fiber; and

d) spatial mode converting the spatially mode converted optical signal propagated through the multi-mode optical fiber, thereby further reducing modal dispersion and further increasing the effective bandwidth of the optical signal.

21 (original) The method of claim 20 wherein at least one of the angle and the displacement is equal to zero.

22 (original) The method of claim 20 wherein the spatial mode converting the spatially mode converted optical signal comprises aperturing the spatially mode converted optical signal to reduce the number of modes propagating in the optical signal.

23 (original) The method of claim 20 wherein the spatial mode converting the spatially mode converted optical signal comprises spatially blocking the spatially mode converted optical signal to reduce the number of modes propagating in the optical signal.

24 (original) The method of claim 20 wherein the spatial mode converting at least one of the optical signal and the spatially mode converted optical signal reduces changes in the effective modal bandwidth of the optical signal that are caused by thermal variations in the multi-mode optical fiber.

25 (original) The method of claim 20 wherein the spatial mode converting at least one of the optical signal and the spatially mode converted optical signal reduces changes in the effective modal bandwidth of the optical signal that are caused by polarization effects in the multi-mode optical fiber.

26 (original) The method of claim 20 wherein the spatial mode converting at least one of the optical signal and the spatially mode converted optical signal reduces changes in the effective modal bandwidth of the optical signal that are caused by mechanical stress in the multi-mode optical fiber.

27 (original) The method of claim 20 wherein the spatial mode converting at least one of the optical signal and the spatially mode converted optical signal reduces changes in the effective modal bandwidth of the optical signal that are caused by optical fiber splices in the multi-mode optical fiber.

28 (currently amended) A multi-mode optical communication system comprising:

a) an optical transmitter that generates an optical signal at an output;

b) a first spatial mode converter having an input that is coupled to an output of the optical transmitter, the first spatial mode converter <u>converting the optical signal to a plurality of modes and </u>conditioning a modal profile of the optical signal for propagation through a multi-mode optical fiber;

c) a multi-mode optical fiber having an input that is coupled to an output of the first spatial mode converter at an interface, the interface exciting higher-order modes in the optical signal propagating in the multi-mode optical fiber;

d) a second spatial mode converter having an input that is coupled to an output of the multi-mode optical fiber, the second spatial mode converter reducing a number of optical modes in the optical signal, wherein both the first and the second spatial mode converters increase an effective modal bandwidth of the optical signal propagating through an output of the second spatial mode converter; and

e) an optical receiver having an input that is coupled to the output of the second spatial mode converter, the optical receiver receiving the optical signal.

29 (original) The communication system of claim 28 wherein the transmitter generates the optical signal with relatively low time-varying phase and sideband information.

30 (original) The communication system of claim 28 wherein the optical transmitter comprises an electro-absorption modulated laser.

31 (original) The communication system of claim 30 wherein the electro-absorption modulated laser comprises a semiconductor active layer that is chosen for operation without external cooling.

32 (original) The communication system of claim 30 wherein the electro-absorption modulated laser comprises a semiconductor active layer that is chosen so that it is substantially transparent to light propagating though the semiconductor layer when a substantially zero or a reverse bias voltage is applied across the semiconductor layer at operating temperatures of the electro-absorption modulator that are substantially greater than 25 degrees Celsius.

33 (original) The communication system of claim 28 wherein the first spatial mode converter comprises a modal conditioning patch that conditions the optical signal propagating from the single-mode optical fiber to a multi-mode optical signal for transmission through the multi-mode optical fiber.

34 (original) The communication system of claim 28 wherein the interface couples a geometric center optical axis of the first spatial mode converter to a geometric center optical axis of the multi-mode optical fiber with a predetermined offset distance.

35 (original) The communication system of claim 28 wherein the interface couples a geometric center optical axis of the first spatial mode converter to a geometric center optical axis of the multi-mode optical fiber at a predetermined angle.

36 (original) The communication system of claim 28 wherein at least one of the first and the second spatial mode converters comprises a slit aperture.

37 (original) The communication system of claim 28 wherein at least one of the first and the second spatial mode converters comprises a pin hole aperture.

38 (original) The communication system of claim 37 wherein the pin hole aperture comprises concentric circular apertures.

39 (original) The communication system of claim 28 wherein the optical receiver comprises an optical detector that is butt-coupled directly to the output of the second spatial mode converter.

40 (original) The communication system of claim 28 wherein the optical receiver comprises an active filter that reconstructs dispersed optical signals received by the optical receiver.

41 (original) The communication system of claim 28 wherein the optical receiver automatically adjusts at least one receiver parameter in order to compensate for changes in an average power of the received optical signal.

42 (original) The communication system of claim 28 wherein the optical receiver automatically adjusts the at least one receiver parameter so as to maintain a substantially constant bit error rate as the average power of the received optical signal changes.

43 (original) The communication system of claim 42 wherein the at least one receiver parameter comprises receiver sensitivity.

44 (currently amended) A multi-mode optical communication system comprising:

a) a means for spatial mode converting an optical signal <u>to a plurality of modes</u>, thereby reducing modal dispersion and increasing an effective bandwidth of the optical signal;

b) a means for launching the spatially mode converted optical signal into a multi-mode optical fiber at an angle and a displacement relative to a geometrical center optical axis of the multi-mode optical fiber, the angle and the displacement being chosen to excite higher-order modes in the spatially mode converted optical signal propagating in the multi-mode optical fiber;

c) a means for propagating the spatially mode converted optical signal through the multi-mode optical fiber; and

d) a means for spatial mode converting the spatially mode converted optical signal propagated through the multi-mode optical fiber, thereby further reducing modal dispersion and further increasing the effective bandwidth of the optical signal.